R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

The Examiner is thanked for conducting telephone conferences on February 12, 13 and 20, 2003, and for indicating the subject matter of the claims of the present application to be allowable. And the Examiner is also thanked for faxing to the undersigned the Proposed Examiner's Amendment dated February 12, 2003.

Based on the Proposed Examiner's Amendment and the telephone conferences, claim 1 has been amended to clarify that the shape of the casing of the temperature measuring device is set such that lumps of ice and snow (which may form on the surfaces of the casing and which may detach from the casing and be blown downstream by the airflow into the engine, the airframe or other equipment of the aircraft) detach at a stage of growth so as to prevent damage to the engine, the airframe or the other equipment of the aircraft.

In addition, claim 2 has been amended to recite the structural feature of the present invention disclosed in the specification at page 7, lines 9-21; claims 3-4 have been amended to recite the structural feature of the present invention disclosed in the specification at page 9, line 22 to page 10, line 3; and claims 5-8 have been amended to recite the structural feature of the present invention disclosed in the specification at page 10, lines 4-14 (as amended).

It is noted that, as requested by the Examiner, the specification has been amended at page 10 to provide direct support for the recitation in amended claims 5-8, and it is also noted that the abstract has been amended to put same in better compliance with the requirements of MPEP 608.01(b).

No new matter has been added, and no new issues with respect to patentability have been raised.

Accordingly, it is respectfully submitted that the present application, as amended, is now in condition for immediate allowance.

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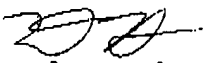
In view of the foregoing, entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned for prompt action.

Respectfully submitted,



Douglas Holtz
Reg. No. 33,902

Frishauf, Holtz, Goodman & Chick, P.C.
767 Third Avenue - 25th Floor
New York, New York 10017-2023
Tel. No. (212) 319-4900
Fax No. (212) 319-5101
DH: encs.

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Claims 1-8 have been amended as follows:

1. (Amended) A temperature measuring device comprising an approximately blade-shaped casing arranged within an airflow flowing into an engine of an aircraft or on an external surface of an airframe of [an] the aircraft,

wherein the temperature measuring device [being for measuring the] measures a total temperature T1 of the airflow based on a measured temperature T of the airflow flowing over surfaces of the casing, and

wherein [a] the shape of the casing is set such that lumps of ice and snow, which may form on [a surface] the surfaces of the casing [in conditions of ice and snow,] and which may detach from the casing and be blown downstream by the airflow into [strike] the engine, the airframe or other equipment of the aircraft, detach at a stage of growth [at which the lumps of ice and snow do not cause] so as to prevent damage to the engine, the airframe or the other equipment of the aircraft.

2. (Amended) A temperature measuring device according to claim 1, wherein an angle of inclination of each blade surface of the casing with respect to a direction of a line of flow of the airflow is [specified such that the lumps of ice and snow detach at a stage of growth at which the lumps of ice and snow do not cause damage to the engine,, the airframe or the equipment of the aircraft] less than or equal to 9°.

3. (Amended) A temperature measuring device according to claim 1, wherein a width of a leading edge section of the casing with respect to a direction of a line of flow of the airflow is [specified such that the lumps of ice and snow detach at a stage of growth at which the lumps of ice and snow do not cause damage to the engine,, the airframe or the equipment of the aircraft] less than or equal to 1 mm.

4. (Amended) A temperature measuring device according to claim 2, wherein a width of a leading edge section of the casing with respect to the direction of the line of flow of the airflow is [specified such that the lumps of ice and snow detach at a stage of growth at which the lumps of ice and snow do not cause damage to the engine, the airframe or the equipment of the aircraft] less than or equal to 1 mm.

5. (Amended) A temperature measuring device according to claim 1, wherein an angle of inclination of [the] a leading edge section of the casing with respect to a direction of a line of flow of the airflow is [specified such that the lumps of ice and snow detach at a stage of growth at which the lumps of ice and snow do not cause damage to the engine, the airframe or the equipment of the aircraft] less than 60°.

6. (Amended) A temperature measuring device according to claim 2, wherein an angle of inclination of [the] a leading edge section of the casing with respect to the direction of the line of flow of the airflow is [specified such that the lumps of ice and snow detach at a stage of growth at which the lumps of ice and snow do not cause damage to the engine, the airframe or the equipment of the aircraft] less than 60°.

7. (Amended) A temperature measuring device according to claim 3, wherein an angle of inclination of the leading edge section of the casing with respect to the direction of the line of flow of the airflow is [specified such that the lumps of ice and snow detach at a stage of growth at which the lumps of ice and snow do not cause damage to the engine, the airframe or the equipment of the aircraft] less than 60°.

8. (Amended) A temperature measuring device according to claim 4, wherein an angle of inclination of the leading edge section of the casing with respect to the direction of the line of flow of the airflow is [specified such that the lumps of ice and snow detach at a stage of growth at which the lumps of ice and snow do not cause damage to the engine, the airframe or the equipment of the aircraft] less than 60°.

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limits (R is 0.5 or a width of 1 mm) for the shape of the leading edge section 24 with which lumps of ice and snow L do not grow large were obtained by calculation and experimentation in an ice and snow wind tunnel.

In Figures 6A to 6C, as an example of the sweptback angle β of the leading edge section 24 being less than 30° (the leading edge section 24 is inclined at an angle greater than 60° with respect to the direction of the line of flow of the airflow), a situation in which the sweptback angle β is 0° is shown. When the airflow strikes the leading edge section 24, the ice and snow which adhere grow forward. At the initial stage of icing, there is less icing at the portion close to the base 21 where the flow rate of the airflow is slow (Figure 6A). In addition, as the icing progresses, the airflow is guided between the base 21 and the lump of ice and snow L, and ice and snow also adhere to the base 21 (Figure 6B), ~~and this casinges with~~ This, the lump of ice and snow L ~~which has grown~~ grows on the leading edge section 24 (Figure 6C). Consequently, since the lump of ice and snow L is adhered to the base 21 and the leading edge section 24, the adhesive force is strong, and the lump of ice and snow L grows large.

Estimates were made for the growth and detachment of lumps of ice and snow L for a situation in which this type of temperature measuring device 10 is used. In making these estimates, the shearing strength of a lump of ice and snow L was assumed, and when the shearing stress on a lump of ice and snow L exceeded this shearing strength, the lump of ice and snow L was taken to have detached, and the mass of the lumps of ice and snow L at the time of detaching was calculated. The factors involved in determining the shearing stress are as follows.

Speed, density, total temperature T1 and moisture content of the air

The point angle α

The sweptback angle β

The width a, the height b, and the radius R of the leading edge section 24

The front surface width p; the surface area q of the front surface, the spreading angle r, the thickness s, the adhesion width t, and the adhesion surface area u of a lump of ice and snow L

Accordingly, it is preferable that the angle of inclination of the casing with respect to the direction of the line of flow of the airflow is less than 60°.